

***Gab2* Cas9-CKO Strategy**

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Project Overview

Project Name

Gab2

Project type

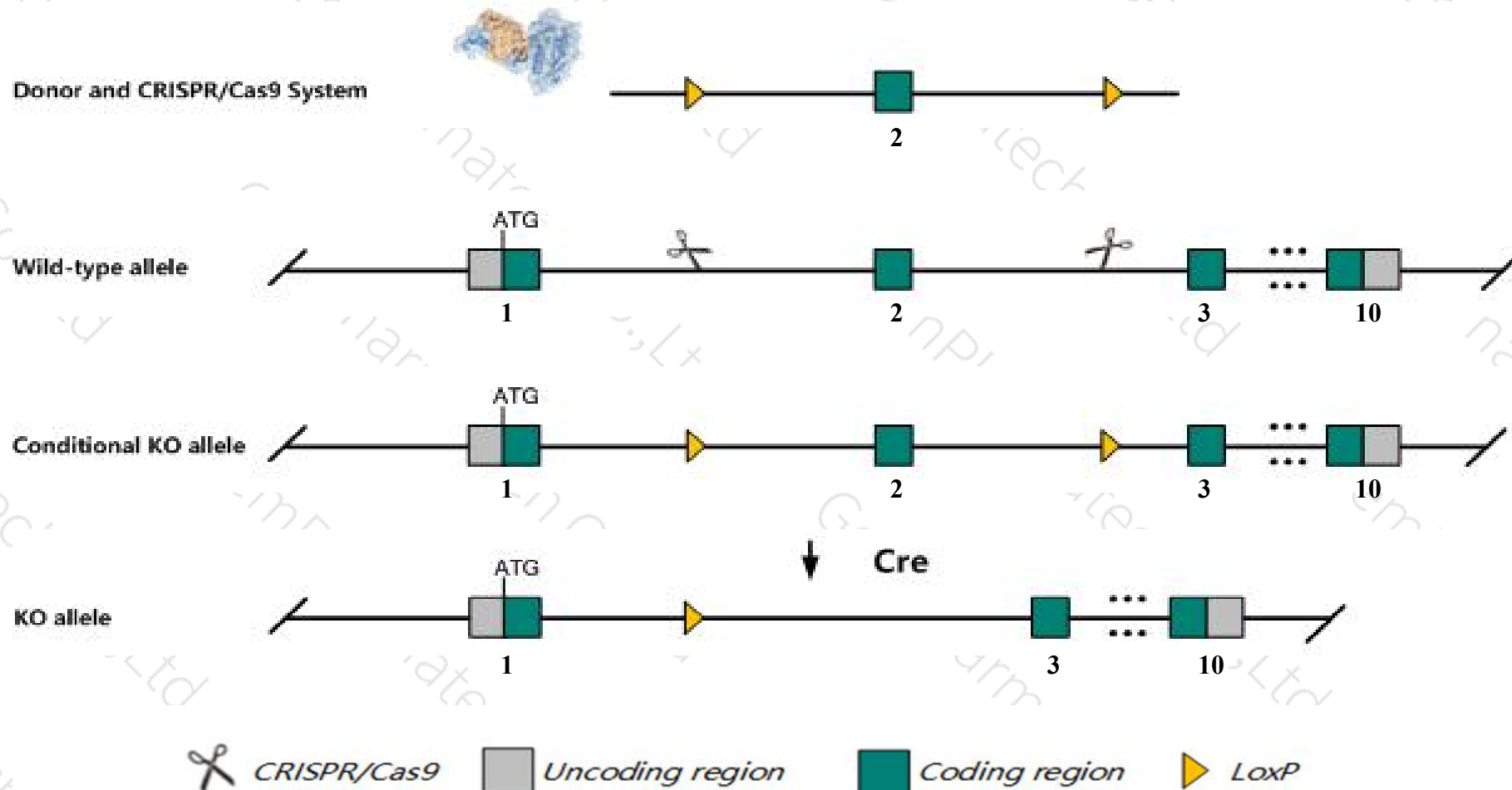
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gab2* gene. The schematic diagram is as follows:



Technical routes

- The *Gab2* gene has 2 transcripts. According to the structure of *Gab2* gene, exon2 of *Gab2-201* (ENSMUST00000004622.6) transcript is recommended as the knockout region. The region contains 301bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gab2* gene. The brief process is as follows: CRISPR/Cas9 system and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice. Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- According to the existing MGI data, Homozygotes for targeted null mutations exhibit impairments in passive cutaneous and systemic anaphylaxis, Fc gamma receptor-mediated phagocytosis, and mast cell development.
- The *Gab2* gene is located on the Chr7. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risk of loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Gab2 growth factor receptor bound protein 2-associated protein 2 [Mus musculus (house mouse)]

Gene ID: 14389, updated on 31-Jan-2019

Summary



Official Symbol	Gab2 provided by MGI
Official Full Name	growth factor receptor bound protein 2-associated protein 2 provided by MGI
Primary source	MGI:MGI:1333854
See related	Ensembl:ENSMUSG000000004508
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI463667, D130058I17Rik, p97
Expression	Ubiquitous expression in ovary adult (RPKM 14.2), testis adult (RPKM 7.5) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

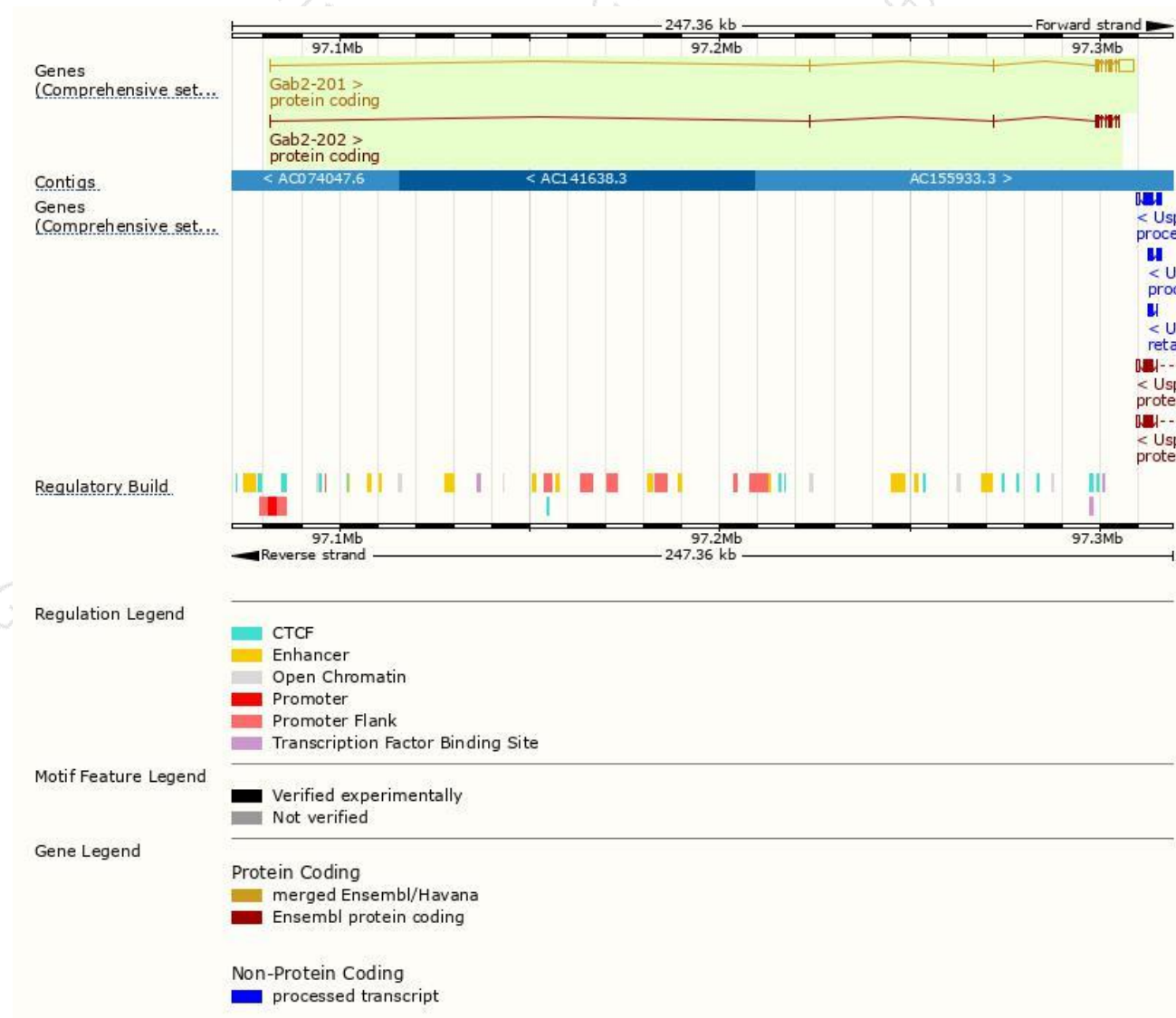
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gab2-201	ENSMUST00000004622.6	6168	666aa	Protein coding	CCDS21455	Q3ZB57	TSL:1 GENCODE basic APPRIS P3
Gab2-202	ENSMUST00000206791.1	2065	665aa	Protein coding	CCDS85340	Q3ZB59	TSL:1 GENCODE basic APPRIS ALT2

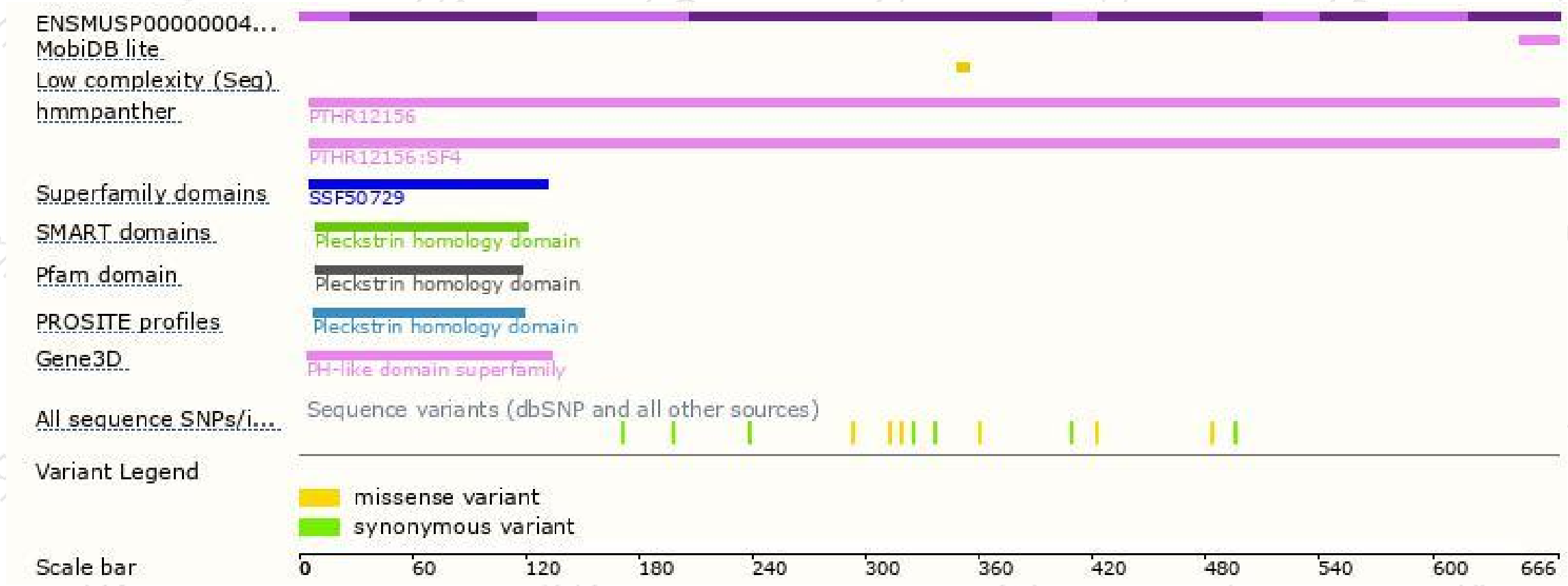
The strategy is based on the design of *Gab2-201* transcript,The transcription is shown below



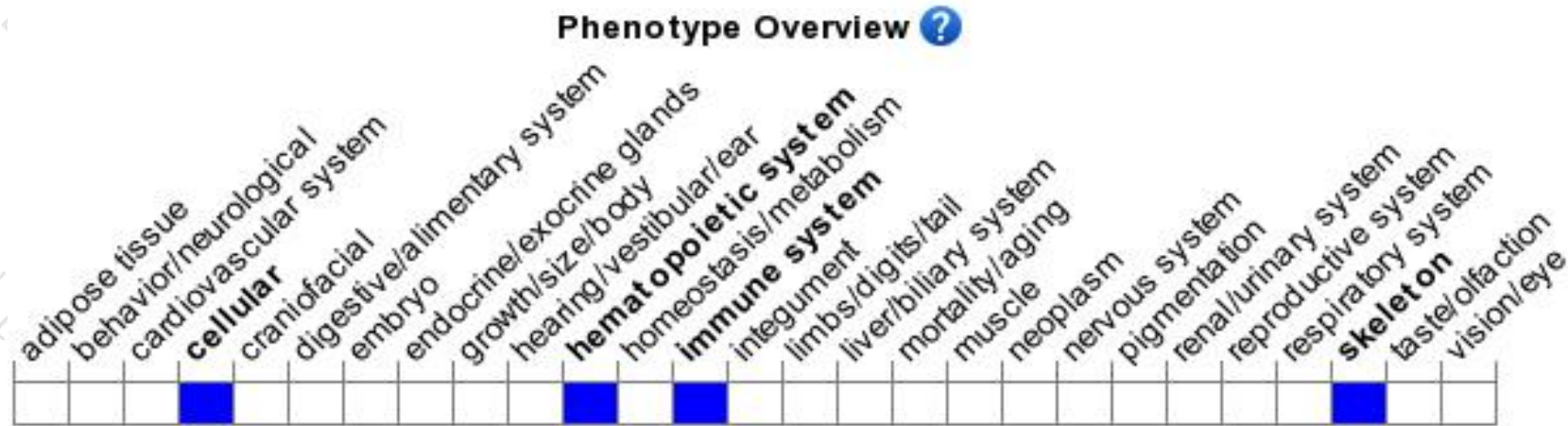
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, Homozygotes for targeted null mutations exhibit impairments in passive cutaneous and systemic anaphylaxis, Fc gamma receptor-mediated phagocytosis, and mast cell development.

If you have any questions, you are welcome to inquire.

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